

# **The Evolution of India's Nuclear Program: Implications for the United States**

**A Monograph  
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# **SCHOOL OF ADVANCED MILITARY STUDIES**

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## **Abstract**

THE EVOLUTION OF INDIA'S NUCLEAR PROGRAM AND IMPLICATIONS FOR THE UNITED STATES by MAJOR David J Creasman, USA, 55 pages.

Since India began developing its nuclear program it has continually encountered issues with the United States and other nuclearized countries over whether India should be able to establish a nuclear program, and subsequently a nuclear weapons program. Over the past 60 years, the Indio-U.S. relationship has swung from supporting India's nuclear ambitions to employing sanctions over nuclear weapon testing. Since the attacks of September 11, the U.S. has paid closer attention to the South Asian region, balancing their policies between the needed Pakistani support for the Global War on Terror (GWOT) with the desire to maintain India as an economic partner and leverage against Chinese regional influence.

This monograph examines the evolution of India's nuclear program as it developed from the 1940s through the 1990s and the current nuclear capabilities that they now possess. In addition, discussing the various U.S. reactions and policies during the time period as they relate to India is important to understand the relationship that currently exists between the two countries. As it approaches its seventh decade, the Indian nuclear program continues to develop improved weapons technologies with the potential to proliferate nuclear material to other countries, how should the U.S. address the various issues that have promulgated over the past 60 years as they relate to the future?

In developing this strategy, the U.S. government should examine the past administrations policies towards India since 1947 in order to develop a comprehensive strategy that utilizes all the instruments of national power that will encourage India to become a responsible stakeholder among the nuclearized countries and demonstrate the responsibility that goes along with nuclear technology. In delving into these past policies, the government will be more able to develop an understanding of the Indian psyche as it relates to the way the U.S. has traditionally dealt with its country. As India continues to develop into a regional power, interaction with the U.S. becomes increasingly important, and the U.S. reactions to Indian endeavors in the nuclear field will permeate throughout the discussions between the two countries.

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## Introduction

The U.S. foreign policy dealing with India faces many interesting challenges in the arenas of nuclear testing and proliferation as the evolution of India's nuclear program continues. Since gaining independence from Great Britain in 1947, India has sought to become a nuclear power. The evolution of its nuclear program can be traced back to this period; beginning with its first test in 1974, has continued to significantly evolve. This evolution continued and culminated with a series of nuclear tests in 1998 that brought the South Asia region to the brink of nuclear conflict and the world the closest to nuclear standoff since the Cuban Missile Crisis in 1962. Since this period, the U.S. has begun to develop closer ties with India, despite our historical relationship with Pakistan and India's willingness to proliferate nuclear material to other countries, such as Iran.<sup>1</sup> With the recent signing of the nuclear agreement between the two countries, a possible new era of cooperation has begun. Additionally, the signing of this agreement shows the willingness of the U.S. to overlook world-wide agreements in the interests of fostering economic and political ties to the world's second largest population and its untapped resources. As India continues in its quest to become the dominant regional power vis-à-vis Pakistan and China, the U.S. faces increased pressure at home from Congressmen, economic groups and non-proliferation organizations and abroad from such organizations as the UN in regards to nuclear proliferation, trade, military power, and the growing economic power in the expanding area of globalization as the U.S. continues to develop the ties with India that will carry over through the coming years.

In light of these facts, this research will examine the evolution of India's nuclear program and its implication for U.S. foreign policy. Since India gained its independence from Great Britain in 1947, India has been involved in a number of regional conflicts, with both its

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<sup>1</sup> Sharon Squassoni. *India and Iran: WMD Proliferation Activities*. CRS Report for Congress: Library of Congress; November 2006, <http://fpc.state.gov/documents/organization/76840.pdf> (accessed 21 February 2008).

neighboring countries such as Pakistan and China, and between the different religious groups located in the subcontinent. Since the late-1940s, India and Pakistan have constantly feuded over a variety of issues such as territory, religion and regional dominance. Occasionally this tension resulted in brief skirmishes along the border and in the disputed territory of Kashmir. However, in 1998, these tensions escalated dramatically when India, followed shortly thereafter by Pakistan, conducted a series of nuclear tests. These tests shocked the entire world, and both countries quickly decided to conduct more tests with improved weaponry. Since these tests, tensions between the two countries rose dramatically, resulting in increased calls from world leaders, including U.S. politicians, to end the testing and sign a nuclear reduction agreement. Following this period of escalation, there has been a gradual decline in the tensions between the both countries.

U.S. involvement in the region is vital for a number of reasons. Chief among these is over economic interests; the U.S. outsources much of its technological programming and systems analysis to India because of favorable trade laws and cost benefits received by corporations. By no longer having this labor force, corporations would lose the millions of dollars it currently profits would it have to utilize people from other locations to do this type work. Additionally, India is the second largest population, and therefore a ready market for U.S. trade goods. A conflict of issues exists within the U.S. because the United States has long been a supporter of Pakistan, especially during the Russian invasion of Afghanistan to prevent the Soviets from gaining territory which could threaten U.S. regional interests. To combat this threat, arms and ammunition were covertly shipped through Pakistan to the rebel fighters in Afghanistan. In opposition to this historical relationship is the readily available market and off-set to China that India offers. Another conflict of issues is that now, more than ever, the U.S. is reliant upon Pakistan to aid in the Global War on Terrorism (GWOT). Following the attacks of 9-11, the U.S. has been forced to maintain increasingly closer ties with Pakistan in order to stem the flow of infiltrators from conducting cross border operations against U.S. forces operating in Afghanistan.



This study examined three empirical research issues. The first issue is how has India's nuclear program evolved since gaining independence from Great Britain in 1947? In analyzing this, we can understand the steps that India has taken to enable it to become a nuclear power. The second issue relates to India as a nuclear protagonist or antagonist. In understanding India's nuclear strategy and capabilities, we are able to better comprehend whether the current direction that India's nuclear program is heading is either towards a responsible world leader or one that is attempting to solidify its status as a regional hegemon. The third issue is whether India is an emerging strategic partner or strategic threat. Understanding this as it relates to U.S. regional interests allows us to formulate a coherent foreign policy that the U.S. should adopt toward India. The findings from these questions allows for projections on the likely effects of Indian views on U.S. foreign policy. The implications of increased pressure from both abroad and on the homefront on U.S. regional policy could be significant.

This monograph explores the impact of India's nuclear program on U.S. regional policy. To accomplish this, the paper is broken into four parts. The first portion focuses on the pertinent nuclear treaties and agreements that exist. Understanding the various treaties that India has operated on while establishing its nuclear program provides the foundation and context for the remainder of this study. This section examines the Comprehensive Test Ban Treaty (CTBT) and the Nuclear Non-Proliferation Treaty (NPT). These two treaties are vital to an understanding of how and under what conditions India began and continued development of its nuclear program and subsequent arsenal. The second section of this paper addresses the historical path that India traversed in the development of its nuclear program. This section begins with their first developments leading to the 1954 testing and climaxes with the 1998 tests and concluding with the program's current state. The third section closely examines the current Indian nuclear arsenal, its emerging nuclear program, and their military operating policies as they relate to nuclear first strike and retaliation. The fourth section concludes with the outlook for India's nuclear program and the implications for the United States.

The methodology section of the monograph details the approach and techniques that will be utilized to assess the implications of India's evolving nuclear program to U.S. regional policy. This study relies on empirical, qualitative analysis of India's developing nuclear program, the regional implications of that program, and the implications of both for U.S. regional interests and policies. This research analyzes both primary and secondary sources through the analytical techniques of a historical document analysis of U.S. foreign policy, a document review of official records on the U.S. foreign policy and other memoirs of policy makers in the various administrations and an examination of pertinent material detailing the evolution of India's nuclear program. Also analyzed are the relevant documents dealing with India's role in regional and international affairs, as well as its relations with other key players as they impact India's nuclear program.

Since India gained its independence from the United Kingdom in 1947, it has maintained some type of diplomatic ties with the U.S. There have been increasingly closer ties between both nations in the areas of trade, economic support and military support. This has been further impacted by the recent agreement between the two countries about the proliferation of nuclear material. In consequence, the question of the impact to U.S. regional policy in regards to India's evolving nuclear program is asked. Therefore, the hypothesis that this study examines is as follows: In what ways could India's evolving nuclear program and proliferation of nuclear material possess a strategic threat against U.S. interests in South Asia.

The principle concept for the study is the history of Indian nuclear program and proliferation. The foundation for this is past U.S. foreign policy decisions in dealing with India is a key to recommending and understanding future U.S. foreign policy toward India. The independent variable, India's support for its nuclear arsenal and attempts to improve upon its Weapons of Mass Destruction (WMD) arsenal, is formed from this concept. This concept is operationalized and measured by a qualitative study of past Indian foreign policy towards its

neighbors and other international actors. Elements of measurements of this concept include economic policies, bilateral trade agreements, public policy, and military agreements and policies.

An additional concept for this analysis is defining the growing role that India plays in this time of globalization and economic development. This concept is defined as follows: does India have a role in globalization and economic development? This concept is operationalized and measured by a qualitative study of Indian assets and agreements in both regional and international organizations. Elements of measurements include: economic organizations and agreements, other regional economic agreements, and habitual relations with the U.S. and other nations in the region.

If this hypothesis is supported, history will be repeated, and the past administration's foreign policy and decisions prove useful in determining future foreign policy decisions. This analysis examines the U.S. foreign policy of past administrations and the current administration, from President Harry Truman to President George W. Bush policy decisions, major crises that involved India during the administration, and the measures taken in order to prevent the crisis from escalating. Additionally, if this hypothesis is supported, the analysis of U.S. involvement with both India and other developing regional powers and strategic partners lends itself to the formation of foreign policy toward India as either a strategic partner or rival.

The information for this research comes primarily from the U.S. State Department archives found in the Library of Congress. Additional information for this research comes from the personal memoirs of the various secretaries of state serving in different administrations, and from additional personal memoirs from the U.S. ambassadors that dealt with India during those administrations. Furthermore, the resources for this research are primarily drawn from the examination of past policy decisions involving U.S. relations with India. Additionally, analysis of policy decisions involving emerging regional powers and strategic partners is required in order to shape future foreign policy toward India. By effectively answering the hypothesis a recommendation for future U.S. foreign policy positions India range from embracing them as a

regional partner and an asset or to treating India as a regional rival and liability to U.S. influence in the region will become evident.

This monograph asks the question what is the impact of India's evolving nuclear program to U.S. interests in the region? This research is important and will gain more importance as India attempts to solidify its position among emerging countries and gains new technology which will enable it to increase its nuclear arsenal. This could potentially result in an escalation in their arms race with Pakistan. India will most likely attempt to do this by a WMD program, not through the traditional diplomatic channels. If the U.S. does not adopt a foreign policy that deals with India as a regional power, the result could prove to be catastrophic. This gains more credence as India continues to disregard nuclear non-proliferation treaties, demand a permanent seat on the UN Security Council, and ignore the requests of western powers that they cease nuclear testing and adhere to the various treaties that deal with this subject.

## Section 1: Treaties

The first section of this paper examines the various treaties that regulate atomic energy and thus nuclear programs, treaties and proliferation. These are significant in that they assist in establishing the framework under which India began to develop and currently operates its nuclear program. There are two key international agreements that will be discussed in this section. These two are important in attempting to limit India's ability to develop its now burgeoning program. The first area to examine is the Nuclear Non-Proliferation Treaty (NPT). This is significant in that India is not a signatory of the treaty; however, the number of signatory countries to this treaty enables others to place pressure on India in curtailing its proliferation and testing of nuclear fissile material. A second agreement to understand is the Comprehensive Test Ban Treaty (CTBT). This treaty attempts to limit the nuclear testing that occurs. While acknowledging that there are other organizations and treaties that exist that also impact the development of India's nuclear program, these can be considered the most important international treaties currently viable in this arena.

### ***The Nuclear Non-Proliferation Treaty (NPT)***

The first treaty to be discussed is the Treaty on the Non-Proliferation of Nuclear Weapons or NPT, which was first signed in July 1968 by the United States, the United Kingdom, the Soviet Union, and 59 other countries. The NPT was brought about by the belief that the proliferation of nuclear material would lead to nuclear war and "the devastation that would be visited upon all mankind by a nuclear war and the consequent need to make every effort to avert the danger of such a war."<sup>2</sup> The treaty was an attempt to ease international tensions and strengthen the trust between countries in order to facilitate the stoppage of the manufacture of nuclear weapons and reduce the current arsenals eventually leading to complete nuclear

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<sup>2</sup> "Treaty of the Non-Proliferation of Nuclear Weapons," *The United Nations Multilateral Arms Regulations and Disarmaments Agreements*, <http://www.disarmament.un.org/TreatyStatus.nsf> (accessed 22 October 2007).

disarmament. The treaty, as it was written then “obligated the five acknowledged nuclear-weapon states (the United States, Russian Federation, United Kingdom, France, and China) not to transfer nuclear weapons, other nuclear explosive devices, or their technology to any non-nuclear weapon state.”<sup>3</sup> The treaty has undergone several revisions, with the last review in 2000, and has the widest adherence of any arms control agreement, with only India, Israel, and Pakistan remaining outside the treaty. “Of the 189 states-parties are classified in two categories: nuclear weapon states (NWS) and non-nuclear weapon states (NNWS).”<sup>4</sup>

There are three key articles contained in the NPT, these articles are I, II, and IV. Article I and II both deal with the proliferation of nuclear weapons or material or to receive nuclear materials from non-nuclear weapon states. These two articles are significant in that they directly attempt to limit states from transferring nuclear weapons and materials to nations that do not currently possess nuclear material. In such, they also restrict the transfer of material that may enable a nation to construct nuclear facilities for the manufacture of fissile material. Article IV almost directly contradicts Articles I and II as “nothing in this Treaty shall be interpreted as affecting the inalienable right of all the Parties of the Treaty to develop, research, production and use of nuclear energy for peaceful purposes.”<sup>5</sup> This is significant because all nations developing nuclear material can claim that it is for peaceful purposes and for the betterment of their populace when in fact it may be quickly weaponized therefore violating the NPT.

There are numerous reasons that India has offered for not signing the NPT. While it is acknowledged that India has had an important impact in the drafting of the treaty and having

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<sup>3</sup> FAS Weapons of Mass Destruction “Nuclear Non-Proliferation Treaty (NPT),” <http://www.fas.org/nuke/control/npt> (accessed 22 October 2007).

<sup>4</sup> Kimball, Daryl. “The Nuclear Nonproliferation Treaty at a Glance.” *Arms Control Fact Sheet*, April 2005, <http://www.armscontrol.org/facts/nptfact.asp> (accessed 6 December 2007). In order to be categorized as a NWS, a nation had to manufacture and explode a nuclear weapon or other nuclear device prior to January 1967. Therefore India can only enter the NPT as a NNWS.

<sup>5</sup> “Treaty of the Non-Proliferation of Nuclear Weapons,” *The United Nations Multilateral Arms Regulations and Disarmaments Agreements*, <http://www.disarmament.un.org/TreatyStatus.nsf> (accessed 22 October 2007).

joined the Partial Test Ban Treaty in 1963, believing that it would be a start to reversing the nuclear arms race, Indian officials felt that the treaty was discriminatory, dividing the world into those possessing nuclear weapons and those that do not. This is noted in former Prime Minister Indira Gandhi's speech when she asserted that:

India's refusal to sign the NPT was based on enlightened self interest and the considerations of national security...nuclear weapon powers insist on their right to continue to manufacture more nuclear weapons. This is a situation that cannot be viewed with equanimity by non-nuclear countries, especially as they are called upon to undertake not to manufacture or acquire nuclear weapons for their own defense. At the same time, we have stated that the Government of India does not propose to manufacture nuclear weapons. We shall continue our efforts for nuclear disarmament because it is only through nuclear disarmament that discrimination would be eliminated and equality between nations established.<sup>6</sup>

Primarily because of these concerns, India refused to sign the NPT, even though they were a primary cog in initiating the movement necessary for this treaty to get passed.

### ***The Comprehensive Test Ban Treaty (CTBT)***

A second significant treaty that complicates India's attempt to become a nuclear power is the Comprehensive Test Ban Treaty (CTBT). The CTBT is the culmination of over forty years of efforts primarily spearheaded by a country that is not a signatory- India and bans any nuclear explosions for military or civil purposes. This issue first came to the forefront when "Prime Minister Nehru of India first voiced the vision of a treaty banning all nuclear explosions in 1954, reflecting rising international concern over radioactive fallout and the escalating arms race."<sup>7</sup> This statement was one of the first Indian attempts to limit nuclear weapon testing and exploration.

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<sup>6</sup> Indira Gandhi. "Speech to Indian Parliament 1968" quoted in "Negotiating the CTBT: India's Security Concerns and Nuclear Disarmament," <http://www.fas.org/news/india/1997/ctbtghose.htm> (accessed 6 December 2007).

<sup>7</sup> *The Comprehensive Nuclear-Test-Ban Treaty (CTBT) at a Glance*. 2001 Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO); (Austria: Vienna International Centre, 2001) 1, <http://www.ctbto.org> (accessed 6 December 2007).

The CTBT grew out of the Partial Test Ban Treaty (PTBT) which was signed in 1963. This was further emphasized when the NPT was signed in 1968. From that time until 1993, little progress was made in the arena of nuclear disarmament; however, late that year “with strong support from the United Nations General Assembly, negotiations for a comprehensive test ban treaty began at the Conference on Disarmament in Geneva.”<sup>8</sup> Over the next three years progress was made, culminating with the signing of the Comprehensive Nuclear-Test Ban Treaty on 10 September 1996 by the General Assembly, and subsequently signed by 71 nations later that month.

The significance of the CTBT is that it places a large amount of responsibility on the signatories to enforce their own nuclear programs and therefore not conduct any tests. One of the major sticking points is in the global verification regime to monitor compliance with the treaty and “must be capable of detecting nuclear explosions in all environments-underground, in water and in the atmosphere.”<sup>9</sup> Many countries that are considered NNWS as outlined by the NPT, particularly India, have issues with this verification and monitoring system, because of the “intrusive nature of the verification regime being developed and expressed early reservations on the use of national technical means, including satellites, for verification.”<sup>10</sup> While India remains committed to the wording of the CTBT, it still is not a signatory. India seeks a CTBT that will eliminate all nuclear weapons within a set timeframe and a call to ban all types of nuclear tests.

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<sup>8</sup> *The Comprehensive Nuclear-Test-Ban Treaty (CTBT) at a Glance*. 2001 Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO); (Austria: Vienna International Centre, 2001) 1, <http://www.ctbto.org> (accessed 6 December 2007).

<sup>9</sup> *The Global Verification Regime and the International Monitoring System*. 2001 Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO); (Austria: Vienna International Centre, 2001) 1, <http://www.ctbto.org> (accessed 6 December 2007).

<sup>10</sup> Arundhati Ghose. “Negotiating the CTBT: India’s Security Concerns and Nuclear Disarmament,” <http://www.fas.org/news/india/1997/ctbtghose.htm> (accessed 6 December 2007).



This was explained in 1996 as “the PTBT drove testing underground, we do not wish the CTBT to drive testing into laboratories by those who have the resources to do so.”<sup>11</sup>

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<sup>11</sup> Ghose, “Negotiating the CTBT: India’s Security Concerns and Nuclear Disarmament.”

## Section 2: The Evolution of India's Nuclear Program

There was never a discussion among us over whether we shouldn't make the bomb. How to do it was more important. For us it was a matter of prestige that would justify our ancient past. The question of deterrence came much later. Also, as Indian scientists we were keen to show our Western counterparts, who thought little of us in those day, that we too could do it.<sup>12</sup>

--Raj Ramanna

### ***1940's: Developing the Program and Why***<sup>13</sup>

In identifying the first attempts by India to begin a nuclear program, Guarav Kampani in his work *Nuclear Overview: Historical Overview* as promoted in NTI identifies these first attempts as "India's nuclear program was conceived in the pre-independence era by a small group of influential scientists who grasped the significance of nuclear energy and persuaded political leaders from the Indian National Congress to invest resources in the nuclear sector."<sup>14</sup> A chief proponent of this was Dr. Homi Jehanjir Bhabha, who submitted his proposal to the Sir Dorab Tata Trust to found a nuclear research institute. His rationale for this exploration was "when nuclear energy has been successfully applied for power, production in, say, a couple of decades from now," Bhabha prophesied, "India will not have to look abroad for its experts but will find them ready at hand."<sup>15</sup> During the 1940s, India's development of its nuclear program remained relatively free from bureaucratic interference from the central government and given a majority of the available financial resources to further their development and testing and was primarily focused on the production of inexpensive electricity. This freedom enabled the scientists to

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<sup>12</sup> Raj Chengappa. "Weapons of Peace," *HarperCollinsIndia* (2000), 82, quoted in Nuclear Weapons Archive "India's Nuclear Weapons Program-The Beginning: 1944-1960," <http://www.nuclearweaponarchive.org/India/IndiaOrigin.html> (accessed 22 October 2007).

<sup>13</sup> There is a lot of discrepancy in determining exactly when India began their nuclear program. The earliest identified date is 1942 but the majority of literature points at 1946-48 as being the time period most associated with the program.

<sup>14</sup> Guarav Kampani. *Nuclear Overview: Historical Overview*. December 2007, <http://www.nti.org> (accessed 20 February 2008).

<sup>15</sup> George Perkovich. *India's Nuclear Bomb: The Impact on Global Proliferation*. (Berkeley: University of California Press, 1999), 16.

conduct a wide variety of tests with very little oversight from the government and acquire vast amounts of resources at the expense of other, possibly needier, government departments.

In beginning the development of their nuclear program, India focused on three events that pushed them in this determination. These three events were: “the establishment of the UN; the dramatic demonstration of the destruction that crude nuclear weapons were capable of in August 1945; and the calamitous partition of British India into the modern states of India and Pakistan.”<sup>16</sup> India, still a colony at this time, was forced to rely upon the British government for representation, which “vehemently opposed India’s national aspirations.”<sup>17</sup> As a result-China, which has a similar geographic size, population, and state of economic development-was given a seat on the Security Council while India was not. A fourth issue that further pushed the development of Indian nuclear capability was the potential threat and regional challenge imposed by China, which attained nuclear capability in 1964. These three factors, combined with the Chinese nuclear threat created urgency to attain this nuclear capability. In addition to shaping India’s nuclear development, these issues also helped shape their foreign policy. India sought to maintain a cooperative relationship with its former colonial power, Britain, but also began to explore other relationships as well.

There were early signs that India would have liked a good relationship with the United States. Indian leaders were aware that the United States had exerted pressure on Britain to advance the date of withdrawal from the subcontinent. But the chance to build a solid bridge to Washington faded because of the American concerns about communism and Soviet and (after 1949) Chinese expansion concerns that New Delhi did not necessarily share.<sup>18</sup>

Indo-Pakistani relations over the decades have been complicated not only by their own historical differences, but also by the continued involvement of outside entities. During World

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<sup>16</sup> Nuclear Weapons Archive “India’s Nuclear Weapons Program-The Beginning: 1944-1960,” <http://nuclear-weaponarchive.org/India/IndiaOrigin.html> (accesses 22 October 2007).

<sup>17</sup> Ibid.

<sup>18</sup> Shirin R. Tahir-Kheli. *India, Pakistan, and the United States: Breaking with the Past*. (New York: Council on Foreign Relations, 1997), 1.

War II, President Roosevelt “attempted to secure objectives in India without paying the necessary price.”<sup>19</sup> Significant to U.S. relations during this time was the potential economic benefit that an independent India would provide the U.S. Following Roosevelt’s death in 1945, new President, Harry Truman, continued along this path of seeking out positive relations with both India and Pakistan. The U.S. has continually sought good relations with both India and Pakistan following their independence in 1947, while at the same time trying to contain the regional influence of both China and the Soviet Union. “India in particular was initially viewed by U.S. policymakers as a model of successful noncommunist economic and political development that other third world countries could emulate.”<sup>20</sup>

Throughout the 1940s, there was a good deal of opposition to India developing a nuclear capability. It came mainly from the U.S., who sought to halt this development. The first effort at halting India’s nuclear attempt was the Baruch Plan which was introduced to the UN in June 1946. Among other things, the Plan sought to “implement control of atomic energy to the extent necessary to insure its use only for peaceful purposes, eliminate from national armaments atomic weapons and all other major weapons adaptable to mass destruction; and establish effective safeguards by way of inspection and other means to protect complying States against the hazards of violations and evasions.”<sup>21</sup> To the Indians, this amounted to little more than a colonial strategy put forward by the U.S. to limit nuclear power to the handful of nations already possessing it. The stance taken by India at the U.N. discussion of the plan came to characterize its nuclear diplomacy for the coming decades: “it supported the principle of insuring that nuclear materials and capabilities would only be used for peaceful purposes, but it resisted any measures that would

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<sup>19</sup> Srinivas M. Chary. *The Eagle and the Peacock: U.S. Foreign Policy Toward India since Independence*. (Westport, CT: Greenwood Press, 1995), 13.

<sup>20</sup> Richard N. Haass and Gideon Rose. *Task Force Report: A New U.S. Policy Toward India and Pakistan*. (New York: Council on Foreign Relations, 1997), 11.

<sup>21</sup> Bernard Baruch. “*The Baruch Plan: Presented to the United Nations Atomic Energy Commission, June 14, 1946*,” [http://www.nuclearfiles.org/menu/key-issues/nuclear-weapons/issues/arms-control-disarmament/baruch-plan\\_1946-06-14.htm](http://www.nuclearfiles.org/menu/key-issues/nuclear-weapons/issues/arms-control-disarmament/baruch-plan_1946-06-14.htm) (accessed 13 December 2007).

allow some states to retain nuclear weapons while denying others the full freedom to exploit their resources as they saw fit.”<sup>22</sup> This was the first time, but certainly not the last time that the U.S. and India would cross paths over nuclear issues. The majority of these issues would concern India’s new neighbor - Pakistan.

### ***1950s: Building the First Reactor***

The 1950s began much the same way the 1940s ended, with the U.S. attempting to curtail any nuclear expansion to countries not already possessing the necessary material. This was further exemplified by the “UN-mandated ‘Atoms for Peace’ program, a broad-based competence in the nuclear field, which could be parlayed, if the need arose, into a weapons capability...against the Communist bloc.”<sup>23</sup> India reacted to this statement as they had previously reacted to other attempts to restrict nuclear procurement. Indian Prime Minister Nehru acknowledged that there was a need to control and eventually eliminate nuclear material but went on to state that the UN was incapable of controlling nations from producing nuclear power, when they would not even allow those countries to enter the UN. In examining the issues associated with these proposals, it appears that India viewed these as another way for the nuclear equipped countries to maintain dominance over those countries that required the production of atomic energy for the welfare of its people.

While the debates over developing nuclear material were occurring, India was very quietly beginning to shift from a uranium based production capability to a plutonium based one. This was mainly in response to a lack of natural uranium resources, coupled with the plutonium produced in the first stage could be used as fuel for the second stage and that would further produce an unending fuel supply. “Conducting this transition was made easier by the construction of India’s first reactor, the 1MW Aspara Research Reactor, built with British

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<sup>22</sup>Perkovich, 21.

<sup>23</sup> Bharat Karnad. *Nuclear Weapons and Indian Security*. (New Delhi: MacMillan India Limited, 2002), 192.

assistance in 1955. This was only the first step as after long negotiations, Canada agreed to provide India with the 40MW Canada-India Reactor (CIR).<sup>24</sup> This was coupled with the agreement of the U.S. to supply heavy water for this reactor. This project, (CIRUS), proved to be a watershed event in nuclear proliferation. The significance of the U.S. agreement to supply heavy water is that this provided an additional conduit for the production of plutonium and allowed India to bypass the uranium enrichment process that would have been necessary to develop nuclear weapons. By allowing this transfer of heavy water to occur in 1955, the U.S. must ultimately bear some responsibility for the nuclear tests that subsequently occurred in 1974.

Even though the U.S. was instrumental in assisting India's fledgling nuclear program, they continued to collide with each other in the efforts to establish controls over nuclear facilities and the fuels that they produce.<sup>25</sup> While India in the 1940s was viewed as an ally to postwar Asian stability, by the 1950s this had changed. Part of the reason this changed was the Indian view of themselves as a leader in the Asian world and partly because of the differences between U.S. policy and Indian objectives once the Cold War commenced. This led to the Eisenhower administration's decision to anchor its South Asian alliance system on a mutual defensive agreement with Pakistan, which further degraded U.S.-Indian relations. Srinivas Chary, in his book *The Eagle and the Peacock: U.S. Foreign Policy Toward India since Independence*, an authoritative account of U.S. foreign policy toward India since it gained independence, sees the 1954 defense agreement between the U.S. and Pakistan as evidence that, "the United States intended to equalize the two states' military power. This initiative also threatened the two major aims of India's foreign policy: keeping the Cold War out of the subcontinent and establishing India's leading position in the region."<sup>26</sup> Even though the military alliance with Pakistan somewhat alienated India, the U.S. continued to provide economic aid and assist the Indian

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<sup>24</sup> M.V. Ramana. "Nuclear Power in India: Failed Past, Dubious Future." *Gauging U.S.-Indian Strategic Cooperation*. (Carlisle: Strategic Studies Institute. 2007). 76.

<sup>25</sup>Perkovich, 28.

<sup>26</sup> Chary, 2-3.

economic development that was put forth as regional priorities by President Eisenhower. As the Cold War began to heat up, the nuclear capability of countries like India began to gain importance in determining the future battlefields and alliances than was previously thought important by the U.S. and Soviet Union.

### **1960s: To Make the Bomb and Sino-Indian Conflict**

In the late 1950s and 60s, India pursued what Nehru insisted was a “peaceful nuclear program,” meaning that their program was not developed to construct nuclear weapons, but instead to provide energy for the populace. However, there were some indicators that some key figures in India’s nuclear program thought differently. One account, by Major General (ret.) Kenneth D. Nichols, an American military engineer recalled a conversation between Nehru and Bhabba that indicated that there were other, far reaching plans in the works,

Can you develop an atomic bomb?” Bhabba assured him that he could and in reply to Nehru’s next question about time, he estimated that he would need about a year to do it....He concluded by saying to Bhabba, “Well, don’t do it until I tell you to.”<sup>27</sup>

During the 1960s, changes began to occur within India that sparked the development of nuclear weapons. Prime Minister Nehru, although advocating disarmament, was apprehensive about China’s nuclear weapon program. Upon his death, India began to develop the program to counter the Chinese program and its subsequent testing in 1964.<sup>28</sup> This also evolved as a result of the 1962 war with China, which altered the Indian view of nuclear weapons. “In a real sense, this

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<sup>27</sup>Perkovich, 36. This conversation has not been noted in any Indian or American literature on India’s nuclear program. MG (ret.) Nichols first brought this up to David Albright originally brought this up in “The shots heard round the world” in the Bulletin of the Atomic Scientists, July/August 1998. This information is somewhat skeptical as it is highly unlikely that India would discuss its nuclear plans with U.S. personnel at that time.

<sup>28</sup> Joyce Battle. “India and Pakistan—On the Nuclear Threshold,” *National Security Archive Electronic Briefing Book No. 6*. <http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB6/index.html> (accessed 18 April 2008).

war began the process that culminated in the Indian nuclear tests of 1998.”<sup>29</sup> Because of the loss in this conflict, Indians began to question their national identity and survivability. In addition to questioning themselves, Indian leaders perceived that the Chinese could not be trusted and were not interested in maintaining friendly relations with neighboring countries, but were willing to resort to military force whenever it suited their needs. Of the many possible conclusions to be drawn from this encounter with China, the most significant was considered to be the ill-preparedness and naïveté of the Indian military which reflected the conflict between defense spending and socioeconomic development. India was faced with a choice on how to allocate its limited resources, for the good of the people or for nuclear development. “If it had chosen instead to become militarily strong, India would have undermined and bankrupted-literally and morally-the essential democratic character that enabled it to win peace through nonviolence.”<sup>30</sup>

In addition to the conflict with China, India engaged in a number of conflicts with Pakistan over border issues. Following its victory in 1965, Indian politicians again renewed their demand for development of a nuclear arsenal. “Some of the erstwhile bomb advocates simply seized on whatever opportunity they could to stoke the debate, but for others, the war had changed the equation.”<sup>31</sup> These advocates saw both China and the U.S. as the real problem as they already possessed nuclear weapons and Pakistan did not. This fed into the psyche of the Indians, still reeling from their loss to China in 1962. The U.S. had other ideas and began to see the regional considerations as important, not just “us or them” mentality that permeated throughout the Cold War. This was evidenced as President Kennedy showed some flexibility in his approach to India, but still viewed them through the Cold War prism. Despite some setbacks in relations between the two countries, the 1960s marked the largest U.S. involvement in South

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<sup>29</sup> John W. Garver. *Protracted Contest: Sino-Indian Rivalry in the Twentieth Century*. (Seattle: University of Washington Press, 2001), 317.

<sup>30</sup> Perkovich, 47.

<sup>31</sup> Ibid, 111.



Asia as the U.S. sought a counterbalance to Chinese influence. In light of this, the humanitarian and security concerns that both the U.S. and India had worked to the Indian advantage. The U.S. government looked at India as a shining beacon of hope for other countries, hoping that India would overcome the economic and social problems that existed there without resorting to an authoritarian type government.<sup>32</sup> U.S.-Indian relations improved considerably during the Kennedy administration because of Kennedy's approach and his efforts to secure aid for India. As President Johnson took over following the Kennedy assassination in 1963, his predecessor's Indian policy was adopted, although some of his actions and India's criticisms of the U.S. involvement in Vietnam eroded much of the goodwill generated by President Kennedy. These differences between the Johnson administration and the Indian government eventually led to a return to the policies adopted by previous administrations designed to minimize Indian regional influence.

### **1970s: First Tests**

Beginning in 1970, India began a more overt program to develop nuclear weapons under the direction of Vikram Sarabhai, who had taken over upon the death of Bhabha in 1965. Sarabhai was not enthusiastic about nuclear weapons, but neither was he averse to using them for defensive purposes. Sarabhai developed a plan to use nuclear energy to attain peaceful capabilities, "such as satellites for telecommunications, remote sensing, weather forecasting, mapping natural resources...as well as capability for military purposes."<sup>33</sup> Sarabhai couched the continued development of the nuclear program in a way that all Indians could understand. He stressed the importance of the economic development that would benefit the populace, but more

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<sup>32</sup> Arthur Rubinoff. "Incompatible Objectives and Shortsighted Policies. *US-Indian Strategic Cooperation: Into the 21<sup>st</sup> Century*. (New York: Routledge, 2006) 43.

<sup>33</sup> Karnad, 307.

importantly he fought to maintain the funding for his nuclear program over other rival programs.<sup>34</sup>

While the domestic populace had cared little for the development of nuclear weapons, events in 1970 began to turn the tide of public opinion into one supporting it. The first event occurred in April 1970, when “China for the first time launched a long-ranger rocket carrying a satellite in to orbit. This raised the specter of a significant Chinese ballistic missile capability to launch nuclear warheads at distant targets.”<sup>35</sup> As a result of this Chinese accomplishment, many elements of Indian society threw themselves behind the program citing such things as increased jobs and national prestige. While many elements of society did back the exploration of nuclear weapon capability, a familiar pattern began to take shape as the military and Ministry of Defense both objected to this.

The third war with Pakistan in 1971, which created the present day country of Bangladesh, resulted in the lowest depths of U.S. Indian relations as the U.S. continued to support Pakistan despite the martial law enacted by Pakistan and the mass exodus of the Pakistani people to India.<sup>36</sup> U.S. relations in the Asian continent at this time were centered on the Sino-Soviet split and the opportunity for the U.S. to leverage that split for its own good. Despite Congressional support for India, President Nixon viewed it through the lens of the Sino-Soviet split, resulting in abandoning support for India for the greater good of the Cold War.<sup>37</sup> As a result of the overtures toward China, India by default became less important to the U.S. strategic outlook in South Asia.

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<sup>34</sup> Karnad, 317-18.

<sup>35</sup> Perkovich, 151.

<sup>36</sup> Dipankar Banerjee. “Incompatible Objectives and Shortsighted Policies. *US-Indian Strategic Cooperation: Into the 21<sup>st</sup> Century*. (New York: Routledge, 2006) 67. This conflict resulted in the U.S. sending the USS Enterprise to the Bay of Bengal to support Pakistan against India.

<sup>37</sup> Rubinoff, 44.

The most significant event to occur in the development of India's nuclear program during the seventies happened on May 18, 1974 near Pokhran, as India conducted its first nuclear detonation. The device was believed to have been heavy with a yield of between 8-12 kilotons, which is less than the weapon dropped on Hiroshima in 1945. The test was described by Indian officials as a "peaceful nuclear explosion" (PNE). Prime Minister Gandhi went further emphasizing "that the new nuclear know-how and technology would contribute to India's development, even if the economically advanced nations would suggest otherwise."<sup>38</sup>

Inside India there were mixed results as news of the detonation was announced. In the political realm, the explosion provided an immediate political lift to Prime Minister Gandhi, who was then suffering from the worst crisis of public confidence during her eight year reign. While most response throughout the country was generally positive, there remained a number of political figures wondering why the government decided to go ahead and test the device. Immediately following this test, all other scheduled tests were unexpectedly cancelled for a variety of reasons. Some Indians would claim that the lack of separated plutonium prevented future tests, while others would claim that the inherent cautiousness of the Indian psyche led the government to cancel the other planned tests.<sup>39</sup>

There were other domestic issues that quickly arose as a result of the PNE. While the scientists conducting the test claimed that it was a "contained" underground nuclear explosion, it came to be proved later that this was false, as the device vented radioactivity into the countryside. Another issue with the test was allegations arising that the test was too expensive to conduct. "Cost had always been the major cause of public doubt about acquiring nuclear weapon capability. The Indian press reported that American commentators had claimed that the test cost \$200

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<sup>38</sup> Perkovich, 178.

<sup>39</sup> Karnad, 317-18.

million. To put this figure in context, from 1969-1974, the Indian government had spent \$200 million on housing.”<sup>40</sup>

International reaction to the Indian PNE was at first mixed. The countries belonging to the non-aligned movement applauded the competence of the scientists and technologies that had enabled the test to be conducted. France sent congratulatory messages to the Indian Atomic Energy Commission. The United States acted swiftly, imposing restrictions on India that were designed to limit India’s access to nuclear material and technology, thereby attempting to slow down India’s nuclear ambitions.<sup>41</sup> While the U.S. sought to bring India into the fold in regards to nuclear security and proliferation agreements, Canada, which had provided the technical and material assistance to make the Indian bomb possible, immediately cut off all aid to the Indian nuclear program. Beyond the immediate reactions of individual countries, India’s nuclear test prompted an intensive tightening of the international nonproliferation agreements, which became more evident in the late seventies and early eighties as India attempted to gain guidance programs and increased nuclear yield in their tests.<sup>42</sup>

An analysis of the Pokhran explosion demonstrated India’s capability to produce nuclear weapons while at the same time highlighting the fact that it took three decades to achieve this accomplishment. A significant fact of this event is that India did not immediately proceed to build and deploy a nuclear arsenal. Advances in this field occurred slowly, particularly in missile development and the design of more sophisticated nuclear weapons. The effects of this PNE were mixed in India as scientists desired to continue testing and the government, facing competing domestic priorities and international considerations began to back away from the

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<sup>40</sup> Perkovich, 181.

<sup>41</sup> Virginia I. Foran. “Indo-US Relations after the 1998 Tests: Sanctions versus Incentives.” *Engaging India: U.S. Strategic Relations with the World’s Largest Democracy*. (New York: Routledge, 1999), 42.

<sup>42</sup> Shirin R. Tahir Kheli. *India, Pakistan, and the United States: Breaking with the Past*. (New York: Council of Foreign Relations, 1997), 71.

continuation of testing.<sup>43</sup> This pledge to not build additional weapons brought with it much needed western aid, particularly to the nuclear field in order to assist in bringing nuclear power to India, albeit for peaceful purposes only. This short-lived agreement abruptly ended in 1979, when the Coalition Government collapsed, eventually paving the way for Gandhi to again assume power the following year.

For the U.S., dealing with India at this time was difficult following the Nixon-Ford presidencies whose policies tilted closely toward Pakistan. With the election of President Carter in 1976, U.S. foreign policy moved in a different direction in regards to India. In contrast to the Nixon and Ford presidencies, Chary saw that “Carter thought India too important a regional power to be relegated to secondary status. Hoping to change the substance, the president considered friendlier relations with India as a significant shift that his administration could bring to the U.S. foreign policy toward South Asia.”<sup>44</sup> During this period, the specter of human rights and interdependence was at the forefront of U.S. relations, which attempted to downplay the Soviet threat and favor non-alignment. However, a major incident in 1979 again forced the U.S. to forge closer ties with Pakistan-the Soviet invasion of Afghanistan. In funneling increased arms and aid through Pakistan, the U.S. government indirectly increased tensions in South Asia. This incident brought Pakistani-Indian tensions to the forefront once again. Because of this, the U.S. was quick to overlook regional considerations and regional stability in the attempt to prevent the Soviet Union from gaining an advantage during the Cold War.<sup>45</sup>

### ***1980s: Developing the Missile Program***

In 1979, as Gandhi again assumed power, she was faced with a far different world than the one that she had left in 1977. Because the global landscape had significantly changed, India explored alternatives to strengthen its security. In doing so, India was willing to abandon its

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<sup>43</sup> Perkovich, 188.

<sup>44</sup> Chary, 147.

<sup>45</sup> Rubinoff, 46.

longtime ally, the Soviet Union. India saw a declining Soviet Union and the opportunities available in the U.S. in the realm of technology (computers, electronics, and telecommunications) that were not available in the U.S.S.R. and were willing to explore other economic opportunities available.<sup>46</sup>

In 1983, India turned from testing nuclear weapons to developing an Integrated Guided Missile Program (IGMP). This shift from the space program developed in the sixties and seventies “resulted from accretion of technological capability, long-term need for advanced indigenous tactical and strategic weapon platforms, and a desire to acquire weapons whose prestige and military role had been determined by the major powers whose stature India sought to share.”<sup>47</sup> As with other nuclear weapons states, it was argued that only having airplanes did not suffice. Consequently, in 1983, the IGMP began development of five missile systems-“the short range Prithvi (Earth), the intermediate range Agni (Fire), the surface to air missiles (Akash (Sky) and Trishul (Trident), and the guided anti-tank Nag (Snake). By 1988, the results of this new program were visible-the first test of the Prithvi was conducted on 25 February 1988. This was followed the next year with a test of the Agni.”<sup>48</sup> This continued to be the path that India travelled down throughout the remainder of Gandhi’s reign, abruptly ended in 1984, when she was assassinated and succeeded by her son Rajiv.

India faced dramatic, complicated strategic problems from 1980-84. U.S. aid to Pakistan in the Afghan war, and Pakistan’s advancing nuclear weapon program created the kind of external environment that would call for increasing the nuclear arsenal. Despite pressures from the nuclear establishment and rising military voices urging the acquisition of nuclear weapons, Gandhi refused to authorize another nuclear explosive test or other measures to weaponize India’s

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<sup>46</sup> Devin T. Hagerty. “The Indo-U.S. Strategic Convergence,” *US-Indian Strategic Cooperation: Into the 21<sup>st</sup> Century*. (New York: Routledge, 2006), 17.

<sup>47</sup> Perkovich, 244-45.

<sup>48</sup> M.V. Ramana. “India’s Nuclear Program-From 1946-1998.” *International Network of Engineers and Scientists Against Proliferation*. <http://www.inesap.org/bulletin16/bull16art02.htm> (accessed 22 October 2007).

nuclear capability. In many ways, India's nuclear policy during Rajiv Gandhi's administration reflected his personal traits. Rajiv Gandhi was enamored with technology and desired economic liberalization that would enrich his country. This coincided with a U.S. President that wanted to further isolate the Soviet Union-Ronald Reagan. As a result, the two countries embarked on a period of technology transfer and increased investments by U.S. banks to India.<sup>49</sup>

### **1990s: On the Brink of Nuclear War in South Asia**

The nineties saw a dramatic turn of events in the development of India's nuclear program beginning with acquiring a delivery capability in 1994 and culminating with the dramatic nuclear tests in 1998 that brought the region to the brink of nuclear conflict between India and Pakistan. George Perkovich, in his book *India's Nuclear Bomb: The Impact on Global Proliferation*, claims that the backdrop for these events occurred in 1992, when Indian strategic thinkers began to believe that the nuclear program should be guided by four principles: "India should never use nuclear weapons first; civilians should exert total control over the military in policy and plans; India should not engage in arms racing; and no single sector-partisan political leaders, the scientists, the bureaucracy, or the military-should be able to drive nuclear policy."<sup>50</sup> These principles and the policy that they represented evolved over time during the eighties and nineties. They reflected the belief that nuclear weapons were not instruments of war but deterrents of last resort. In contrast to this view, former Deputy Secretary of State Strobe Talbott, in his book *Engaging India*, saw this as "a manifestation of long-festered differences over the rules governing the international system and countries' self-assigned positions in that system."<sup>51</sup>

The capstone event for the development of India's nuclear program occurred between 11 and 13 May 1998, when India tested what was believed to be three nuclear devices, followed two

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<sup>49</sup> Hagerty, 17.

<sup>50</sup> Perkovich, 330.

<sup>51</sup> Talbott, Strobe. *Engaging India: Diplomacy, Democracy, and the Bomb*. (Washington D.C.: Brookings Institute Press; 2004); 4.

days later by the testing of two sub-kiloton devices that were designed to provide data for additional computer designs that would enable India to increase the capacity of its nuclear arsenal.<sup>52</sup> The momentum behind the testing had built steadily since 1995. The newly elected government boldly pushed India across the threshold of declared nuclear weapon status, carrying the country into what can be considered the third phase of its nuclear history and perhaps ending its record of self-restraint. “In conducting the May tests, the Indian government stood by the premise that it was the right of every nation to conduct these tests and that they should not be limited by those nations that already possessed and tested nuclear weapons.”<sup>53</sup>

The tests were a bold statement and bid for Indian power in the international system. But the public declarations of government officials betrayed the absence of a coherent, analytically buttressed national security strategy. The driving forces behind the tests—the scientists and engineers—could claim no expertise in military-strategic affairs or international relations or any deep understanding of how nuclear weapons would affect India’s relations with Pakistan, China, the United States and others in the mid and long term.

Indian officials wanted the tests to serve or at least not detract from seven objectives: to win recognition of India as a major power; to catch up to China in terms of status and strategic deterrence; to reassert technological and strategic superiority over Pakistan; to bolster the expertise, morale and recruitment of BARC and DRDO; to strengthen national defense at low cost while maintaining civilian control over nuclear policy; to maintain moral standing as an advocate of nuclear disarmament; and to boost the BJP government’s internal position.<sup>54</sup>

The immediate aftermath of the nuclear tests conducted by India, and then by Pakistan was not encouraging. In the two weeks concluding the tests, the Indian government made both conciliatory remarks and potentially threatening remarks. India announced a self-imposed moratorium on nuclear testing, but at the same time made threatening remarks to Pakistan about

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<sup>52</sup> “India Nuclear Overview.” [http://www.nti.org/e\\_research/profiles/India/Nuclear/index.html](http://www.nti.org/e_research/profiles/India/Nuclear/index.html) (accessed 22 October 2007).

<sup>53</sup> Foran, 40.

<sup>54</sup> Perkovich, 439.



interference in Kashmir. “In a vain attempt to denounce these attacks President Clinton appealed to other world leaders to condemn the Indian tests. These proved to be futile as many nations, specifically France and Russia, would not do so. In the U.S., The Clinton administration’s response was to issue sanctions and insist on U.S. ratification of the CTBT.”<sup>55</sup> India’s decision to conduct these tests under the guise of national security significantly set back U.S.-Indian relations. What was developing as a period of trust and cooperation was wiped clean and replaced by another period of mistrust and a lack of confidence between the two nations.<sup>56</sup>

In 1992, a new era for U.S.-India relations appeared to begin as a new administration was elected into office. At first it appeared that newly inaugurated President Clinton would follow the same approach as the two previous administrations, a sanctions heavy approach to both India’s and Pakistan’s nuclear program. However, this soon proved to be inaccurate as Clinton announced how he would approach South Asia in late 1992. “Our objective is first to cap, then over time reduce, and finally eliminate the possession of weapons of mass destruction and their means of delivery.”<sup>57</sup> While this new stance was criticized, it represented an emerging acceptance among officials that nuclear weapon capabilities would remain part of the South Asia reality for the foreseeable future. The challenge was to encourage India and Pakistan to capitalize on the basic deterrence they had achieved and stop short of weaponization that would destabilize the region.

The Clinton Administration’s approach to South Asia could be characterized by advancing U.S. interests in the region.

The U.S. has a variety of interests in the South Asia region, which encompasses India. This region, comprised largely of India and the countries around its

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<sup>55</sup> William G. Hyland. *Clinton’s World: Remaking American Foreign Policy*. (Westport CT: Praeger, 1999), 194. Note: Congress failed to pass the CTBT.

<sup>56</sup> V.P. Malik, “Indo-US Defense and Military Relations.” *US-Indian Strategic Cooperation: Into the 21<sup>st</sup> Century*. (New York: Routledge, 2006), 87.

<sup>57</sup> Perkovich, 335.

periphery, affects U.S. interests in a variety of ways, and sometimes has figured prominently in the Executive-Congress policy disputes. These include nuclear and missile proliferation, destabilizing ethnic/region conflicts, dissidence movements, politically related human rights abuses, lurching programs toward greater democratization, lagging economic development and widespread deforestation and other environmental degradation.<sup>58</sup>

Additionally, Clinton saw that the U.S. had five major objectives in the region. These were “detering nuclear missile proliferation; supporting a resolution of the Kashmir problem; gaining a better adherence to internationally recognized human rights standards; promoting economic liberalization and growth; and promoting greater protection of the environment.”<sup>59</sup>

The U.S. retained several security interests in the region, notwithstanding the change in the global strategic environment. An analysis of the reviewed work shows these to be the interrelated goals of deterring or limiting nuclear and missile proliferation, averting conflicts, and making sure that U.S. relations with regional states were a source of positive influence on U.S. interests in the Middle East/Persian Gulf region, and not a source of instability. To this effect India had emerged as a focus of concern about chemical weapons proliferation, mainly because of its exports of large quantities of dual-use industrial chemicals.



















The following chart illustrates the current capabilities of India’s nuclear, biological, and chemical and missile programs as they relate to their current location in India.<sup>60</sup> This chart is important because it depicts the locations of the nuclear plants and the locations of the missiles that they would most likely be affixed to in the event of a nuclear conflict. The significance of that information is that there is only one location (Hyderabad) where the nuclear plant and the missiles are co-located; therefore it can be assumed that early detection of preparation for nuclear launches will be readily apparent.

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<sup>58</sup> Richard Cronin and Barbara L. Lepoer. *Congressional Research Service, Report Number 93-243: South Asia: U.S. Interests and Policy Issues*. (Washington D.C, 1993) 1.

<sup>59</sup> Ibid, 49-50.

<sup>60</sup> *India Special Weapons Facilities*. Global Security.  
<http://www.globalsecurity.org/wmd/world/india/facility.htm> (accessed 18 January 2008).

Locale	Nuclear	BW	CW	Missile	Aircraft
<a href="#">Ambala AB</a>					
<a href="#">Bhanur</a>					
<a href="#">Bhatinda AB</a>					
<a href="#">Chandigarh</a>					
<a href="#">Chandipur</a>					
<a href="#">Delhi</a>					
<a href="#">Hindan AB</a>					
<a href="#">Hyderabad</a>					
<a href="#">Jullundur</a>					
<a href="#">Kalpakkam</a>					
<a href="#">Pokhran</a>					
<a href="#">Ratthalli</a>					
<a href="#">Tarapur</a>					
<a href="#">Thal / Tai Vaishet</a>					
<a href="#">Trombay</a>					
<a href="#">UNIDENTIFIED</a>					
<a href="#">UNIDENTIFIED</a>					
<a href="#">Wheeler Island</a>					

### **Section 3: Indian Military Capability**

This section of the monograph analyzes India's current nuclear posture and capabilities. The monograph focuses on three key areas: an understanding of the factors affecting India's posture, Indian nuclear doctrine, and current Indian nuclear capabilities.<sup>61</sup> The examination of the factors affecting Indian nuclear capabilities will focus on the character of the global nuclear regime, regional security, and relations within the international system. In exploring India's nuclear doctrine, this section looks at the concerns, contexts and constraints; the adopted policies; and the evolution of the force. In analyzing the current capabilities, this section examines what nuclear weapons and delivery systems India actually possesses, and the supporting infrastructure areas.

#### ***Influences to Nuclear Posture***

Ashley Tellis, in his study for RAND, *India's Emerging Nuclear Posture* states that "in general there are four variables that will influence the direction, extent, and patterns of change in India's nuclear posture over time: the character of the global nuclear regime; the demands imposed by regional security and, in particular, regional nuclear threats; the character of India's bilateral relations with key powers in the international system; and the opportunities offered by indigenous performance and capabilities in the context of domestic political debates about nuclearization."<sup>62</sup> In examining Tellis' work, these variables are vital to achieve an understanding of Indian nuclear doctrine and policy in that these factors have shaped the way that Indians have thought of themselves and their role in the world since beginning to explore the use of nuclear weapons.

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<sup>61</sup> There is currently very little information available on Indian nuclear capabilities; the most up to date information available is 2001 data.

<sup>62</sup> Ashley J. Tellis. *India's Emerging Nuclear Posture*. (Santa Monica: RAND, 2001), 20.

## Global Nuclear Issues

Global nuclear issues are critical because they assist in determining “the direction, extent, and patterns of change in India’s nuclear posture. Most but not all, of the world’s major powers are nuclear weapons states. Most, but not all, of the world’s nuclear weapons states are major powers.”<sup>63</sup> Because of this, the global nuclear regime influences the direction of India’s nuclear posture in that “it makes denuclearization impossible and, to the extent that it allows the existing nuclear weapon states to continually maintain and perhaps improve their arsenals even if only in qualitative term.”<sup>64</sup> While this does not mean that Indian policymakers are unaware of the changes that have occurred in the global nuclear regime, it does imply that the changes that have occurred are insufficient and possess little to no impact on their own situation.

The present global nuclear regime is viewed within India with mixed opinions. In his book *India: Emerging Power*, Stephen Cohen identifies two arguments that favor India’s attempt to be a part of the global nuclear regime: “On the one hand, nuclear weapons were considered a shameful badge worn by the great powers of the cold war. On the other extreme, some saw a positive link between India’s nuclear weapons and great power status.”<sup>65</sup> This is because in an era where nuclear countries continue to downsize their nuclear arsenals to historic lows because of the reduced threat from other nuclear weapon equipped countries, India (and Pakistan) continues to explore ways to increase the size and capability of their own arsenals. Indian policymakers see this global reduction as being in their strategic interests as it allows them to maintain a type of status quo with other nuclear countries.

In analyzing the various documents on India’s nuclear posture it is evident that despite the changing world nuclear posture, there are a number of options available to nuclear equipped countries to affect India’s nuclear posture- by influencing the nature of the nuclear deterrence

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<sup>63</sup> Stephen Philip Cohen. *India: Emerging Power*. (Washington D.C., Brookings Institute, 2001). 157.

<sup>64</sup> Tellis, 22.

<sup>65</sup> Cohen, 168.

regime. The significant issue is that the current deterrence strategies are centered on offensive capabilities; that implies the capacity of a nuclear power to readily inflict horrible damage on the population centers of an adversary.<sup>66</sup> This offensive dominant posture has significant advantages because it requires only modest nuclear arsenals for the purpose of deterrence. This is especially important for emerging nuclear powers, since relatively small nuclear forces can hold at risk a large number of adversarial population centers. “Small nuclear forces can therefore function as highly credible deterrents in an offense-dominant regime. As long as the present regime, which ultimately derives its efficacy from MAD, remains intact, it is therefore likely that the future Indian nuclear arsenal would remain relatively modest, at least by the standards of the Cold War.”<sup>67</sup>

In conclusion, the global nuclear order affects India’s future nuclear posture in significant ways. It defines the potential for further nuclearization or denuclearization and ultimately determines the character of the threat. In light of the data collected on this topic, it is evident that the size and scope of India’s nuclear program will come into question as nuclear equipped countries continue to downsize their arsenals and India makes strides to become a more effective nuclear equipped regional power. This allows India to become the offensive postured nuclear force that is capable of maintaining the deterrent force in South Asia.

## **Regional Nuclear Threats**

In contrast to India’s global outlook, there are far more pressing concerns in their regional relations as they relate to their current nuclear posture. This subsection of the monograph analyzes India’s relations with two regional rivals-Pakistan and China. It is with these two rivals that India has historically feuded over border areas, regional dominance and nuclear weapons capabilities.

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<sup>66</sup> Tellis, 36.

<sup>67</sup> Ibid, 37.

“Since the early 1990s India and Pakistan have been steadily moving their nuclear deterrence from aircraft based to ballistic missile based with potentially devastating results for the Indo-subcontinent’s stability.”<sup>68</sup> This move from aircraft based to missile based delivery increases the ambiguity between the nations as to the extent of their nuclear programs, which could ultimately result in fears over preemption and false early warnings resulting in nuclear launches by both countries. In addition to India’s nuclear issues with Pakistan, the regional foreign policy is based upon the assumptions that, “the entire subcontinent is a single strategic unit on the basis of perceived geophysical and cultural unity and Indian in terms of culture and geographic history; the strategic unity of the subcontinent therefore naturally leads to the inappropriateness of the Two Nations Theory for the subcontinent which undermines India’s image of itself as a secular, pluralistic, multiethnic democracy; and that Indian hegemony in South Asia is both natural and desirable.”<sup>69</sup> These Indian assumptions lead to the root problem of Indo-Pakistan relations; as each side sees themselves as being the dominant power, tensions increase. This is never more evident than the continuing Kashmir conflict that has been in some state of warfare since 1947.

A second major regional actor that affects Indian nuclear posture is China. “Since 1962, nuclear weapons have played a significant role in Sino-Indian relations.”<sup>70</sup> Indian leaders have perceived a clear nuclear threat from China since 1964 and it is China’s land-based ballistic missile force, together with the types of warheads that can be delivered, that remain India’s principle concern in the near term. While the two countries can be considered rivals, both have a lot in common. The two countries share the longest disputed border in the world, have domestic issues along the outlying regions of their countries, and as the two rising states are likely to

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<sup>68</sup> Ben Sheppard. “Ballistic Missiles: Complicating the Nuclear Quagmire,” *Nuclear India in the Twenty-First Century*. (New York: Palgrave-MacMillan, 2002), 189.

<sup>69</sup> Kanishkan Sathasivam. *Uneasy Neighbors: India, Pakistan and U.S. Foreign Policy*. (Cornwell Great Britain: Ashgate, 2005), 142-143.

<sup>70</sup> Garver, 313.

sustain this rivalry that has existed.<sup>71</sup> However, this rivalry will continue to exist as “China has elevated itself to the first rank of powers without Indian assistance or even a close relationship with New Delhi. Beijing cares little for India, and though the India-China border dispute is in abeyance, China could reactivate it at any time with little risk of Indian retaliation.”<sup>72</sup>

India’s strategy for dealing with a nuclear China today consists of maintaining superior conventional capabilities along the contested border. “These capabilities encompass several well-equipped and highly trained mountain divisions manning a series of carefully prepared positional defenses, all backed by superior tactical airpower.”<sup>73</sup> In analyzing this strategy, it provides India with a great deal of security in the nuclear arena as it places the first use in Chinese hands. Should this occur, other nuclear powers will more than likely assist India in offsetting China and the world of public opinion would support India. The downside of this strategy is that India would be forced to rely upon other nuclear powers to assist in offsetting China. This dependence could result in being forced to sign nuclear agreements that would limit their ability to continue pursuit of their peaceful nuclear program.

Indo-China relations have significantly improved in the past 20 years. The two countries have decided that resolving the border dispute is the strategic objective in their relationship and have agreed to “double bilateral trade to \$40 billion by 2010.”<sup>74</sup> This, in addition to the recent easing of tensions in regards to the border dispute presents India with options on how to develop a policy to deal with China. India could possibly develop a closer relationship with China, but at the risk of alienating the United States. Adopting this policy would leave India at the mercy of China and would ultimately sacrifice any claim that India currently has in regards to the border

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<sup>71</sup> Teresita C. Schaffer. “A Changing India,” *South Asia in 2020: Future Strategic Balances and Alliances*. (Carlisle: Strategic Studies Institute, 2002), 43.

<sup>72</sup> Cohen, 262.

<sup>73</sup> Tellis, 73.

<sup>74</sup> Pranab Muckherjee. “China for India’s Seat in the UN Security Council: Pranab.” <http://www.IndiaNews.com> (Accessed 18 February 2007).



region. Another available option would be to confront China. This would most likely be in conjunction with another power (U.S. or Russia). This is dangerous for India in that following this course of action would trigger a Chinese response. A final strategy available to India would be to build on the areas of common interest with the Chinese, therefore mutually developing and limiting possible U.S. influence in the region.<sup>75</sup>

## **International Relations**

While developments in the regional security arena (specifically dealing with Pakistan and China) are considered the most important to Indian nuclear posture, it is not in the local arena alone that India has concerns. In addition to regional actors, the role that international actors play influences how India perceives regional security. The two biggest actors in this arena are Russia and the United States. These two countries were vital to the development of India's nuclear program and the conflict between the two that forced India to choose sides, ultimately resulting in the founding of the Non-Alignment Movement.

The first foreign relationship examined is between India and the United States. This is significant for a number of reasons, including the recent nuclear agreement between the two countries. While there are differences in both national and strategic interests between the two countries, the relationship between the two nations will most likely remain at a strategic partnership because of the fundamental principles that both countries share.<sup>76</sup> This relationship has significantly improved since the first Indian nuclear tests in 1974, and was significantly enhanced by the Indian economic reforms begun in 1991. However, relations were significantly hampered by the 1998 nuclear tests, after which the U.S. imposed sanctions which were intended to hamper the continued development of India's nuclear program. Expanded American trade and investments would force the U.S. to take a more vested interest in Indian security and stability.

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<sup>75</sup>Cohen, 263-264.

<sup>76</sup> V.P. Malik. "Indo-US Defense and Military Relations: From estrangement to strategic partnership, *US-Indian Strategic Cooperation Into the 21<sup>st</sup> Century: More than words*. (New York: Routledge, 2006); 97:

Because of this, many Indian policymakers feel that the U.S. should lift some of the restrictive policies to enable the transfer of sophisticated technologies from the U.S. that would enable the civilian sectors of Indian economy better enabled to produce.

While the relationship between the two countries generally followed this path at the conclusion of the Cold War, there was still a significant lag from the Indian perspective. “In part, despite engaging one another, sought to service divergent interests from inherently different levels of strength. The United States viewed its evolving relationship with India from the perspective of a global power; it sought to incorporate India into its vision of furthering regional stability in Asia.”<sup>77</sup> The relationship between the two countries has a relative maintained status quo, even though there has been significant increase in trade and transfer of technology for civilian use.

The relationship between the two countries has significantly improved recently as the U.S. has agreed to a nuclear deal that “would lift the moratorium on nuclear trade with India, provide U.S. assistance to India’s civilian nuclear energy program, and expand U.S.-Indian cooperation in energy and satellite technology.”<sup>78</sup> In return for this agreement, India has agreed to “impose sweeping controls over its civilian nuclear program, including placing the program under the safeguard of the International Atomic Energy Agency. India has also agreed to separate its military and civilian nuclear programs, and adopt new rules to safeguard against unauthorized exports of nuclear technology.”<sup>79</sup> There are many objections to this agreement from both parties involved. Many argue that the U.S. is ignoring the established protocols in forging this agreement in order to promote regional stability and security, “it is a motivating factor in the deal...China’s rise in the region is prompting the United States to seek a strategic relationship

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<sup>77</sup>Tellis, 81.

<sup>78</sup> Esther Pan and Jayshree Bajoria. “The U.S.-India Nuclear Deal.” *Council on Foreign Relations*. [http://www.cfr.org/publication/9663/usindia\\_nuclear\\_deal.html](http://www.cfr.org/publication/9663/usindia_nuclear_deal.html) (accessed 22 October 2007).

<sup>79</sup> King, Neil Jr. and Jay Solomon. “U.S. to Aid India’s Nuclear Program; Bush Vows More Cooperation On Range of Civilian Projects; U.N. Bid Remains a Hurdle.” *Wall Street Journal*, [http://www.indianembassy.org/US\\_Media/2005/July/WSJ1.htm](http://www.indianembassy.org/US_Media/2005/July/WSJ1.htm) (accessed 22 October 2007).

with India. 'The United States is trying to cement its relationship with the world's largest democracy in order to counterbalance China.'"<sup>80</sup>

In addition to keeping relations with the United States open, India also has a vested interest in securing relations with Russia; however, this relationship is not considered as tight as the former India-Soviet Union relations from the Cold War era. Despite the reduction of its international role, Russia still remains the largest source of military supplies for India. This, coupled with the significant amount of trade between the two countries compels India to maintain this relationship.<sup>81</sup> This judgment is driven by the perception that countries like Russia and Japan share certain common interests with India vis-à-vis China...and neither can afford to be indifferent to the growth of Chinese power over time.

While Moscow has become increasingly sensitive to the problem of nuclear proliferation, they are willing to overlook their concerns when it improves the current economic conditions of Russia. This willingness to overlook such safeguards "has given New Delhi critical opportunities to acquire Russian technology in support of its future nuclear posture. Unlike other bilateral relationships, Delhi's Russian connection can thus be seen as vital in that it directly advances the development of India's strategic capabilities and, by implication, determines the kind of nuclear force architecture that India could develop over time."<sup>82</sup> This is not limited to the transfer of nuclear technology, recently India and Russia signed a "\$2.8bn deal to lease four long range nuclear bombers and two nuclear-capable submarines in a move that will amount to a dramatic escalation of the subcontinent's arms race."<sup>83</sup> In reaching these deals, India has shown a willingness

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<sup>80</sup> Pan and Bajoria.

<sup>81</sup> Schaffer, 42-43.

<sup>82</sup> Tellis, 84-85.

<sup>83</sup> Luke Harding. "Moscow deal boosts Indian nuclear arms." *The Guardian* (January 23, 2003), [www.cdi.org/russia/241-8.cfm](http://www.cdi.org/russia/241-8.cfm) (accessed 22 October 2007).

to entertain offers from various countries that enables it to maintain its regional power base and attempt to maintain alliances to offset growing Chinese influence in Asia.

### ***Nuclear Doctrine: When will India use the bomb?***

In order to understand India's nuclear doctrine, one must first attempt to understand how India perceives their interests and the strategy they employ to protect those interests. Currently there are no formal documents that outline either the doctrine or strategy of India's nuclear program. There are however, levels of understanding that can be interpreted as doctrine. Guarav Kampani, in his work on the overview of India's nuclear force believes that:

India's primary goal is to achieve 'economic, political, social scientific, and technological development' and autonomy in domestic and strategic decisionmaking in an environment free of coercion from either the threat or use of nuclear, chemical or biological weapons. With these objectives in view, the Indian government has adopted a nuclear 'no-first-use' or doctrine of 'retaliation only.'<sup>84</sup>

In light of this strategy, India has developed policies on the use of nuclear weapons. In understanding policy one can comprehend that "India's nuclear doctrine can be seen as a system of beliefs that both describes the utility of nuclear weapons to the state and identifies the manner in which these weapons will be deployed and used consistent with the purpose for which they have been acquired."<sup>85</sup> Following the nuclear tests in 1998, India began to develop its nuclear doctrine. This doctrine pledged India's stance of a no first use policy and will only use nuclear weapons in retaliatory role; however, this proposed strategy did reserve the right to conduct punitive strikes should deterrence fail.<sup>86</sup>

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<sup>84</sup> Guarav Kampani. "Nuclear Overview: India." NTI [http://www.nti.org/e\\_research/profiles/India/Nuclear](http://www.nti.org/e_research/profiles/India/Nuclear) (accessed 20 February 2008).

<sup>85</sup> Tellis, 260.

<sup>86</sup> Office of the Secretary of Defense. *Proliferation: Threat and Response (South Asia)*. Office of the Secretary of Defense, January 2001. <http://www.fas.org/irp/threat/prolif00.pdf>; pp. 25 (accessed 18 January 2008).

## **Nuclear Policy**

The most significant component of India's nuclear policy is the government's consistent claim that nuclear weapons are political instruments, not military tools. India sees its nuclear policy as a way of guaranteeing the sovereignty and territorial integrity against the threats possessed by other nuclear powered states.<sup>87</sup> This is important as India has traditionally believed that states should decide for themselves whether to pursue nuclear power, which often contrasts with what current nuclear powers believe.

India's efforts to depict nuclear weapons as purely political instruments is rooted in the multiple objectives and constraints related to its national security policy. "The reluctance-and perhaps inability-to pursue a conventional war that threatens either Pakistani or Chinese national survival is seen to result in its being spared the prospect that either of its adversaries will actually use nuclear weapons against India."<sup>88</sup> Since none of the multiple objectives sought by Indian political leaders can be attained through the use of nuclear weapons as military instruments, the use of these as political instruments is reinforced by this declaratory policy. While this policy has changed over time, given the various regimes and technological advances, it is unlikely to significantly shift any further.

## **Current Nuclear Capabilities**

India currently possesses a strategic weapon capability that includes both air-deliverable nuclear weapons and ballistic missiles and is continuing to develop more sophisticated long range ballistic missiles. This sub-section of section three examines the current capabilities possessed by India in the realm of ballistic missiles. India has developed "the most ambitious missile programme in the developing world."<sup>89</sup> India has an extensive, largely indigenous ballistic

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<sup>87</sup> K. Subrahmanyam. "India and the International Nuclear Order," *Nuclear India in the Twenty-First Century*. (New York: Palgrave-MacMillan, 2002), 63.

<sup>88</sup> Tellis, 295.

<sup>89</sup> Jane's Sentinel Country Security Assessment, "India Armed Forces," [http://sentinel.janes.com/subscribe/sentinel/doc\\_view\\_print.jsp?K2DocKey=/content1/jane](http://sentinel.janes.com/subscribe/sentinel/doc_view_print.jsp?K2DocKey=/content1/jane) (accessed 18

missile program involving both SRBMs and MRBMs, which has progressed considerably over the past several years. This development program includes two significant types of missiles currently in its arsenal, these three are: “the Prithvi SRBM and the Agni.”<sup>90</sup>

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January 2008). India has also developed a fairly robust biological and chemical capability that will not be discussed here.

<sup>90</sup> Office of the Secretary of Defense. Another type of missile, the Dhanush has been developed, but is nearly identical to the Prithvi III.

The map below graphically depicts the current and projected ranges of the Agni and Prithvi missiles possessed by India.<sup>91</sup> This is significant because the current range of the Prithvi is 150km (inner ring), which can threaten both Islamabad and some parts of southern China. The projected ranges of the new Prithvi and Agni (outer ring) are capable of threatening the majority of the China and the Straits of Hormuz. This is important as it relates to the global economic landscape and oil producing regions and the threat to Chinese territory that these missiles possess.



The first class of missiles examined is the Prithvi SRBM. This missile is a “single-stage, liquid fuel, road-mobile, ballistic missile that has been developed in three different versions.”<sup>92</sup> The Prithvi I is considered a battlefield support missile and has been in the service approximately

<sup>91</sup> Office of Secretary of Defense, 26.

<sup>92</sup> Office of the Secretary of Defense, 25.

14 years. “The Prithvi I has a payload of between 800-1000kgs and an estimated range of 40-150kms.”<sup>93</sup> The Prithvi I is most likely intended for use against armored vehicles, although this capability appears to be limited, given its history of fueling problems. The second type of missile, the Prithvi II was developed for the Air Force. “It is a medium-range liquid-fueled missile with a range of 40-250kms and a payload of 500-700kgs.”<sup>94</sup> The third version of the Prithvi, the Prithvi III is a “boosted solid-fueled version and has a range of 40-350km and warhead weight of 750-1,000kgs. It was designed for the navy and has experienced several setbacks.”<sup>95</sup>

The second missile system discussed is the Agni, a medium to long range ballistic missile that is believed to have a range of up to 2,500km and was first tested in 1989. There are several variants of the Agni in service, with several more in the testing stages of production at this time. The first missile, the Agni I is “a solid/liquid fuelled two-stage road-mobile ballistic missile that has a nuclear-warhead capability for the army. The missile range is estimated at 860km with a payload of 1,000kg, however it is believed that the dual-fuel limitation and other first-generation inhibitors (preparation time of approximately 8 hours under favorable conditions) mitigate mass production.”<sup>96</sup> While the Agni I is mainly out of production, in 2007, India again tested the Agni I, the first such test since 2004. The second Agni missile currently under production is the Agni II, which uses a two-stage solid propellant system and first tested in 1999. “The Agni II has an estimated range of 2,500km and a payload of 1,000kg.”<sup>97</sup> The significance of the Agni II is that it is capable of striking anywhere in Pakistan and has the range capable of striking targets in China. While the employable inventory of the Agni II is believed to be quite low, due to its size

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<sup>93</sup> Jane’s Sentinel Country Security Assessment, “*India Armed Forces*,” [http://sentinel.janes.com/subscribe/sentinel/doc\\_view\\_print.jsp?K2DocKey=/content1/jane](http://sentinel.janes.com/subscribe/sentinel/doc_view_print.jsp?K2DocKey=/content1/jane) (accessed 18 January 2008).

<sup>94</sup> Ibid. Another variant of this missile, the Dhanush is under development for the Navy and is designed to be launched from surface vessels.

<sup>95</sup> Ibid

<sup>96</sup> Jane’s Sentinel Country Security Assessment.

<sup>97</sup> Ibid.



and requirements for setting up the missile; early detection is quite easy. The Agni III, the third missile is the heaviest of the Agni series and has an estimated range of 3,500kms. While it appeared to be well on its way to testing and production in 2004, the first test did not occur until 2006 and was as unsuccessful due to the failure of the second stage to separate. In 2007, the missile was successfully tested in the Bay of Bengal. The Agni III, “fitted with an onboard computer was designed to cross the atmosphere and re-enter the earth targeting the predetermined impact point near Car Nicobar Island.”<sup>98</sup> The Agni III currently has the longest reach of any missile in South Asia; however, it falls well short of long range missiles that China currently possesses. While the testing of the Agni III has proven to be successful, there are several attempts to convert the missile for use in other weapons providing India with a second strike capability that has not previously existed.

### **Future Developments: Where are they headed?**

In addition to the two classes of missiles discussed above, India is currently testing new missiles and discussing the implementation of a missile shield in 2010. This subsection discusses the direction that India is heading in achieving these objectives.

The first missile that is currently being developed is the Indian Inter-Continental Ballistic Missile, the Agni IV. There has been no confirmation that this program exists, however there are several indicators that this has program has been underway since 1994. “The Agni IV is intended to be a single-stage, liquid-fuelled missile with an estimated range of 12,000km.”<sup>99</sup> The second missile, the PJ-10 BrahMos is an ant-ship/land target cruise missile that has been jointly developed with the Russian Federation. With this missile, “India expects to significantly enhance

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<sup>98</sup> “India successfully test fires ‘Agni III nuclear capable’ missile.” *Islamic Republic News Agency*, New Delhi, 12 April 2007 quoted in GlobalSecurity.org; <http://www.globalsecurity.org/wmd/library/news/india/2007/india-070412-irna01.htm> (accessed 22 January 2008).

<sup>99</sup> Jane’s Sentinel Country Security Assessment, “*India Armed Forces*,” [http://sentinel.janes.com/subscribe/sentinel/doc\\_view\\_print.jsp?K2DocKey=/content1/jane](http://sentinel.janes.com/subscribe/sentinel/doc_view_print.jsp?K2DocKey=/content1/jane) (accessed 18 January 2008).

its long-range strike abilities. The supersonic missile has a range of almost 300km and is designed for use with land, sea and aerial platforms.”<sup>100</sup> While this development places India in a small, elite group of countries to acquire the capability to produce cruise missiles, “what makes this jointly produced cruise missile distinguishable from others is that it travels at supersonic speed.”<sup>101</sup> Besides the significance of being supersonic, this missile is significantly more advanced than any like missile produced in China therefore giving India a significant edge in any conflict between the two countries in the Indian Ocean.

In addition to offensive capabilities, India is currently working on a defensive strategy that will ensure that their protection from missile launches in either Pakistan or China. To accomplish this goal, “Indian defense officials say that they will have a shield in place by 2010. This plan incorporates a complete ballistic missile defense system to be in place within three years.”<sup>102</sup> While the technology to devise such a defensive system is not yet mature, the driving force behind this development is the continued testing of nuclear capable missiles by Pakistan. In addition, “India is continuing to explore the possibilities of purchasing the technology and systems that have been offered by various countries such as the United States, Russia and Israel.”<sup>103</sup>

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<sup>100</sup> “PJ-10 Brahmos,” Global Security.org.  
<http://www.globalsecurity.org/military/world/india/brahmos.htm> (accessed 22 January 2008).

<sup>101</sup> Ibid.

<sup>102</sup> Steve Herman. “India Plans Missile Shield by 2010” as quoted in Global Security.org.  
<http://www.globalsecurity.org/space/library/news/2007/space-071213-v9oa01.htm> (accessed 22 January 2008).

<sup>103</sup> Ibid.

## Section 5: Conclusion and Proposed Foreign Policy

We must deal wisely with the world's largest democracy. Soon to be the most populous country in the world, India has the potential to help keep the peace in the vast Indian Ocean area and its periphery. We need to work harder and more consistently to assist India in this endeavor, while not neglecting our friends in Pakistan.<sup>104</sup>

--Colin Powell, *Secretary of State Confirmation Hearing*

This monograph examined the evolution of India's nuclear program and its implications for U.S. regional interests. Since gaining its independence in 1947, India has continually attempted to gain nuclear power and weapons in order to attain and then maintain regional hegemony. Can India and the United States create a strategic partnership that will further the security and foreign policy interests of both countries? Since the advent of the second Bush administration, there has been a warming in relations between the two countries, with increased military contacts and talk of technology transfers. Further, the two countries share democratic values and are concerned about the spread of terrorism in the broader Asian region. Economically, India remains a large and relatively untapped market that would be of interest to American multinational corporations. These ties have led to some speculation about a potential U.S.-India security partnership emerging. Xenia Dormandy, in her essay on whether India will be a responsible international stakeholder sees that "largely unnoticed by the global community, India has ascended to the world stage over the past 15 years, building on its economic reforms of the early 1990s and nuclear tests in 1998."<sup>105</sup> In light of this, what role does the United States play in dealing with India, and how should the U.S. policy be formulated to deal with the rising power that is India?

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<sup>104</sup> Powell, Colin. "Secretary of State Confirmation Hearing." As quoted in Gupta, Amit, *The U.S.-India Relationship: Strategic Partnership or Complementary Interests?* (Carlisle: U.S. Army War College, 2005), 5.

<sup>105</sup> Xenia Dormandy. "Is India, or Will It Be, a Responsible International Stakeholder?," *The Washington Quarterly* 30:3 (2007): 117-118.

Diplomatically, there are a number of initiatives that the U.S. can institute that will ensure closer ties with India in the near future. Ashley Tellis, in his essay regarding India as a strategic partner states that “since the Bush Administration took office in 2001, there remained only one last structural impediment to closer U.S.-Indian ties and that was New Delhi’s anomalous nuclear status in the post-1974 period. It is this reality that President Bush has gone to great lengths to correct.”<sup>106</sup> India, understanding both its role in the region, and with the U.S., better enables it to understand its role in international organizations. Seeing India as a pragmatic and modern state, leveraging its admittance as a permanent member of the UN Security Council (something India has long desired), could be the first step in attaining political and social reform in India. Another step toward ensuring closer relations with India could be to increase diplomatic ties, thereby lessening Chinese influence in the Asian sub-continent. Leveraging these two nations against each other for superiority on the Asian sub-continent will do a number of things, chief of which is to focus Chinese efforts on the Asian continent thereby decreasing their ability to influence progress in Africa and South America.

In the information domain, there are a number of initiatives already in place that ensures closer ties to India. The U.S. should maintain the current information exchange with India; however, there are a number of corporations that outsource to the sub-continent because of wages and working conditions which are advantageous to the corporation. Additionally, the U.S. should garner international assistance to place pressure on India that encourages them to become a responsible stakeholder among nuclear powers and sign both the Nuclear Non-Proliferation Treaty and the Comprehensive Test Ban Treaty. In doing this, the U.S. should be willing to champion India’s cause for admittance as a permanent member of the UN Security Council. In concluding these reciprocal agreements, both sides would achieve the goals that they have long attempted to reach. The U.S. desires a responsible nuclearized India and India desires a

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<sup>106</sup> Ashley J. Tellis. “What Should We Expect From India as a Strategic Partner?,” *Gauging U.S.-Indian Strategic Cooperation*. (Carlisle: Strategic Studies Institute, 2007), 236.

permanent seat on the UN Security Council. In further formulating an information strategy designed to encourage India to become a responsible nuclear stakeholder, the U.S. can also trumpet the responsibilities that India now possesses in ensuring that fissile material and technology do not get to non-nuclear states. Ashton Carter in his article *America's New Strategic Partner?*, sees this as a benefit for both India and the United States. "With New Delhi as an informal ally, Washington should expect to have India's help in curbing Iran's nuclear ambitions, even if India's assistance would risk compromising its friendly relations with Iran."<sup>107</sup> In conducting this type of information strategy, the onus of not supplying nuclear material to Iran would be placed on India, which acts as a responsible nuclear stakeholder whose intentions are for the welfare of the world.

Over the past few years, India-U.S. relations have focused on military cooperation, the possibility of technology transfers, and discussions about India's potential as an emerging market. Military cooperation has been the most highly visible aspect of the improved relations between the two countries. John Gill, in his essay on US-India military interaction states that these contacts have developed as one of the most important aspects of U.S. Indian relations, "each country has key interests that can be promoted through sustained enhancement of their growing military relationship, and many of these interests are shared by both capitals."<sup>108</sup> The two militaries have conducted a number of joint exercises, and Indian naval vessels have been escorting American naval assets from the Straits of Malacca to the Arabian Sea, thus freeing up American ships for other operations.

Military cooperation can be carried out in joint operations or in India providing forces for peacekeeping operations. Both technological limitations and political attitudes make joint operations difficult in the near future. At the technological level, Indian military equipment and

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<sup>107</sup> Ashton B. Carter. "America's New Strategic Partner?", *Foreign Affairs* 85:4 (2006): 41.

<sup>108</sup> John H. Gill. "US-India Military-To-Military Interaction: In the context of the larger relationship," *US-Indian Strategic Cooperation: Into the 21<sup>st</sup> Century, More than words*. (New York: Routledge, 2006), 113.

communications infrastructure is estimated to be one generation behind the United States. This makes it difficult to launch operations or share information in real time. Unless the United States is willing to transfer the requisite technologies, such cooperation would be degraded. For India to acquire this technology, a qualitatively different relationship would have to emerge where the United States trusted India's ability to keep transferred technology secure from theft or illegal transfers. It would also require the type of close political and military cooperation that the United States has with its NATO allies.

Utilizing the economic instrument of power, there are a number of initiatives that the U.S. can use to gain nuclear concessions from India. In his essay on the economic outlook for South Asia, Vijay L. Kelkar states that "rapid economic growth and successful poverty reduction in South Asia, the home for the largest number of poor people in the world, is of strategic importance to the global community, as a prosperous South Asia would vitally contribute to global peace."<sup>109</sup> This is significant in that as the population continues to grow, there must be some type of change that incorporates this larger domestic population into the workforce as viable contributors for the overall good of the nation, instead of becoming a burden to the country as they are unable to gain the jobs necessary to better themselves. To assist in this arena, there are a number of ways that the U.S. can assist India in accomplishing this goal. However, India must be willing to undergo economic reforms that will ensure that they can become more productive members of the global economic community. Kelkar anticipates that economic reforms could result in a "boost in Indian exports from the present day US\$51 billion to about US\$800 billion by 2020."<sup>110</sup> In order to become a regional economic power there are a number of things that the Indian government must accomplish. The first is to become a full-fledged member of APEC. Because the rapid economic growth in the region implies that the major economic powers will be

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<sup>109</sup> Vijay L. Kelkar. "South Asia in 2020: Economic Outlook," *South Asia in 2020: Future Strategic Balances and Alliances*. (Carlisle: Strategic Studies Institute, 2002), 63.

<sup>110</sup> Ibid, 95.

keenly involved in Asia. Secondly, it will mean the rise in the power a series of large Asian states, the consequent power shift, and the need for restructuring the global structures that seek to maintain the status quo of the old post World War II balance of forces. Third, this type of shift will entail a possible clash of interests between the established North-North America and West Europe- and the Asian South. Because U.S.-Indian economic relations are likely to expand significantly in the years to come, potential sources of economic friction should be handled whenever possible through multilateral institutions such as the World Trade Organization (WTO). In addition, as Carter points out, “as India expands its civilian nuclear capacity and modernizes its military, the United States stands to gain preferential treatment for U.S. industries.”<sup>111</sup> This enables the U.S. to play a larger role in the continued development of both India’s nuclear program and the economic reforms to ensure that they remain a responsible nuclear stakeholder and do not lapse into becoming a third world country that only hopes for maintaining dominance through utilizing nuclear weapons or materials.

U.S. interests in South Asia, although not vital, are important and increasing. These interests include preventing major war and further nuclear proliferation; expanding economic growth, trade, and investment; promoting robust democratic institutions; and cooperating on issues ranging from enhancing stability across Asia to combating terrorism and drug trafficking. The end of the Cold War should permit a substantial improvement of bilateral relations between Washington and New Delhi, as well as between the two principal South Asian states. But seizing this opportunity will require more creative thinking and skillful diplomacy than has been the norm. It is time to end the relative U.S. neglect of these two countries and the fifth of humanity they represent. The time is ripe, in particular, for the United States to propose a closer strategic relationship with India, which has the potential to emerge as a full-fledged major power. The relationship would be based on shared values and institutions, economic collaboration including

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<sup>111</sup> Carter, 43.

enhanced trade and investment, and the goal of regional stability across Asia. Consistent with these interests, the United States should adopt a policy that acknowledges India's growing power and importance; maintain high-level attention including regular reciprocal visits of cabinet members and senior officials; loosen unilateral U.S. constraints upon the transfer of dual-use technologies; increase military-to-military cooperation; cooperate on elements of India's civilian nuclear power program and other energy-related issues; and undertake limited conventional arms sales. The United States should also support India's entry into Asia-Pacific Economic Cooperation (APEC) forum and consult with India regarding its interest in membership in other regional and global institutions.

The continued development of India's nuclear program has implications for the U.S. in the realm of nuclear testing and proliferation to countries not currently possessing the technology nor the material necessary to develop its own program. A major sticking point for the U.S. is that India has yet to sign either the NPT or CTBT. Agreeing to adhere to these treaties can potentially enable India to gain a more prominent role in South Asia. While there are drawbacks to India's continued development, there also exists opportunity for the U.S. to build upon the areas of cooperation that exist. These include increasing diplomatic and economic ties with India to counterbalance Chinese influence and broker a peace settlement for the disputed Kashmir territory. As there remains cause for worry, there remains cause for optimism that India can realize its potential and become a responsible stakeholder among nuclear powered countries.



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